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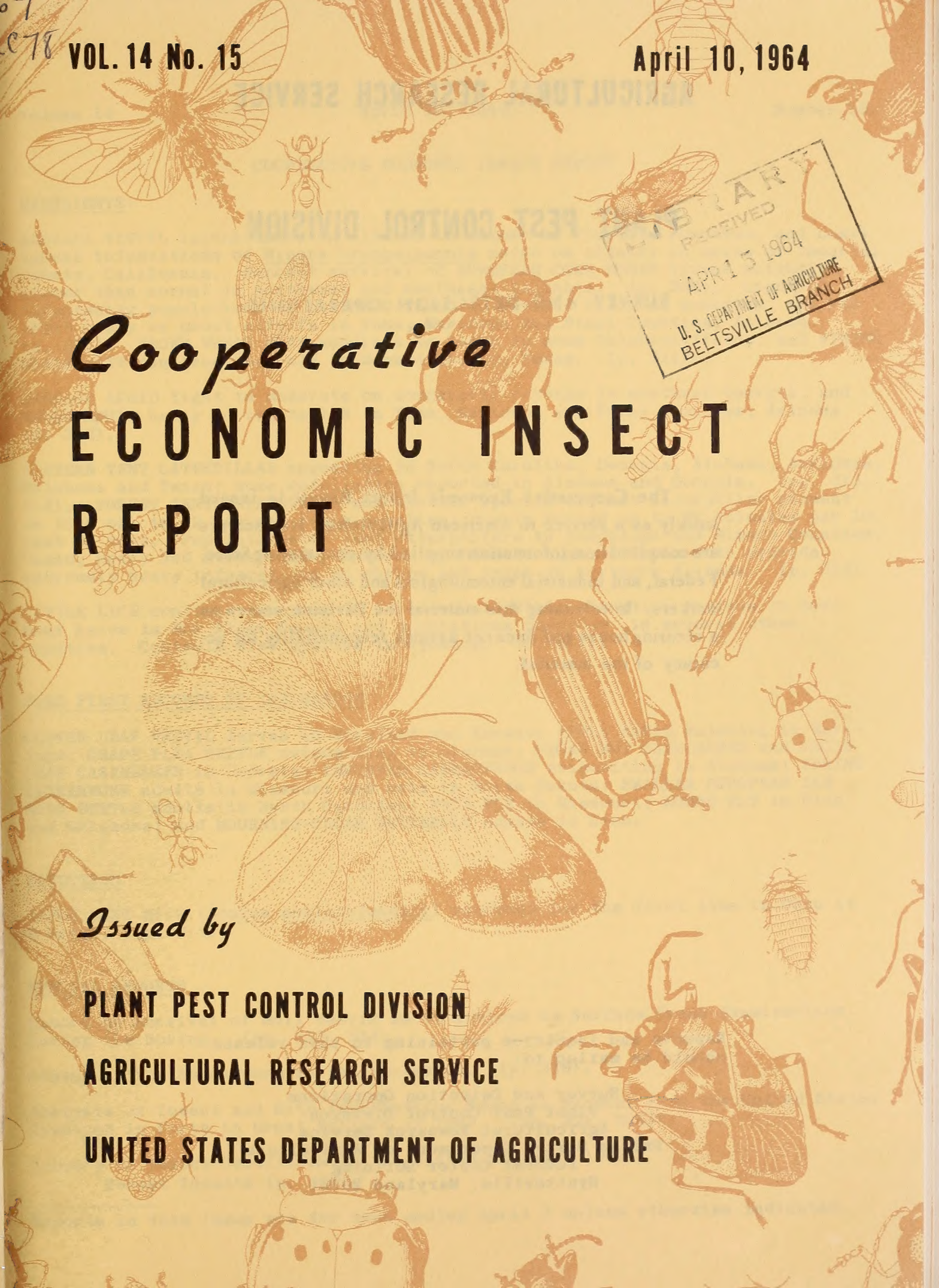

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 14 April 10, 1964 Number 15

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS:

ALFALFA WEEVIL larvae heavy on alfalfa in number of Virginia counties, and heavy larval infestations of *Hypera brunneipennis* noted on alfalfa in areas of Imperial County, California. Percent survival of EUROPEAN CORN BORER larvae slightly higher than normal in northwest and northeast Illinois. (p. 309). Light to threatening populations of GREENBUG found in several Oklahoma counties, and PEA APHID heavy on uncut alfalfa in Yuma, Maricopa and Pinal Counties, Arizona. (p. 310). BROWN WHEAT MITE moderate to heavy in some Oklahoma fields, and WINTER GRAIN MITE required controls in Menard County, Texas. (p. 311).

CABBAGE APHID light to moderate on commercial cabbage in southern Georgia, and MELON APHID heavy on vegetables in Yuma, Maricopa and Pinal Counties, Arizona. (p. 312).

EASTERN TENT CATERPILLAR appearing in North Carolina, Georgia, Alabama, Arkansas, Oklahoma and Texas; some defoliation reported in Alabama and Georgia. (pp. 312, 314). FOREST TENT CATERPILLAR and another species of tent caterpillar present on live oak in 12 central Texas counties; counts varied up to 20 colonies per 10 feet of tree. Populations of tent caterpillars in Guadalupe and Blanco Counties, Texas, heavy and widespread. Numbers of BAGWORM eggs sufficient to provide extremely heavy infestations on shrubs and trees in northern Alabama. (p. 315).

CATTLE LICE continue annoying to livestock in Utah; situation serious in most beef herds in Box Elder County and populations numerous in several other counties. Controls also applied in Wyoming. (p. 317).

SOME FIRST RECORDS OF THE SEASON

CLOVER LEAF WEEVIL larvae in Maryland and Kansas; APPLE APHID hatching in Maryland; GRAPE FLEA BEETLE ovipositing in Alabama; PECAN NUT CASEBEARER and PECAN LEAF CASEBEARER in Georgia; IMPORTED CABBAGEWORM ovipositing in Alabama; SPRING CANKERWORM adults in Missouri and male in North Dakota; SMALLER EUROPEAN ELM BARK BEETLE adults in North Carolina; FACE FLY in Missouri; HOUSE FLY in Utah and Oklahoma; and MOURNING-CLOAK BUTTERFLY adults in Utah.

DETECTION

APPLE RUST MITE (*Aculus schlechtendali*) recorded for the first time in Ohio at Wooster. (p. 312).

SPECIAL REPORTS

Report on Survival of Boll Weevil as Determined by Surface Trash Examinations During the Spring. (pp. 313, 314).

Status of the Screw-worm in the Southwest. (p. 316).

Analysis of Insect and Mite Infestations Found in Produce from the United States Examined in Ports in Great Britain in 1963. (pp. 321, 322).

Summary of Insect Contitions in the United States - 1963
Forest Insects (p. 323).

Reports in this issue are for week ending April 3 unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

APRIL 1964

The Weather Bureau's 30-day outlook for April calls for temperatures to average above seasonal normals over the southern two-thirds of the Nation lying between the Great Plains and the East coast. Below normal temperatures are predicted for the areas west of the Continental Divide and also for the Northern Plains. Near normal averages are in prospect for areas not specified. Precipitation is expected to exceed normal over the Great Lakes, the Mississippi and Ohio Valleys, and the Far West. Subnormal amounts are indicated only for the South Atlantic coast and western portions of the Southern Plains. In areas not specified near normal precipitation is anticipated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING APRIL 6

Arctic air moved southward early in the week. Tallahassee, Florida, registered 31° on Monday morning, March 30, and 29° on Tuesday. Cold temperatures continued in the East but milder weather returned to the West. Afternoon temperatures on Tuesday reached the 60's and 70's in Montana and the 70's and 80's over most of Utah, Colorado (except in the mountains), Kansas, and southward to the Gulf of Mexico. Light rains fell along the Pacific coast on Tuesday and spread inland to the Rocky Mountains on Wednesday. Light showers fell from Missouri to the Atlantic coast on Wednesday. Brisk southerly winds brought warmer air to the central Great Plains. Kansas City, Missouri, registered 79° and Dodge City, Kansas, 88° on Wednesday afternoon. Snow fell over the higher western mountains and the snowpack continued to increase in the Cascades and Sierra Nevadas. Snow fell over the Rocky Mountains Wednesday night. Northern Arizona received 4 inches and 3 inches fell at Ely, Nevada.

By Thursday, a storm intensified in Nebraska and Kansas. Hail fell at spots in Iowa, Missouri, and Illinois. A few tornadoes occurred in Nebraska. By Friday morning, cold rain and wet snow occurred from Nebraska to the southern Great Lakes, over upstate New York and northern New England. Showers and thunderstorms occurred over the middle Mississippi and Ohio River Valleys and the Appalachian region. By Friday noon, a cold front stretched from an intense storm over southern New England to the Oklahoma Panhandle. Another storm was gaining strength in Texas. A tornado at Wichita Falls, Texas, killed 7 persons, injured 111 others, and destroyed 200 dwellings. According to preliminary estimates, the property damage amounted to 15 million dollars. Several other tornadoes struck the Oklahoma-Texas border area on Friday and Saturday.

The weekend was stormy. Snow fell over the Rocky Mountains and from the northern Great Plains to New England. Generous rains occurred over the central and southern Great Plains and eastward to the Atlantic Ocean. Freezing rain, sleet, and a mixture of snow and rain fell along the southern edge of the snowfall area. Numerous severe thunderstorms and several tornadoes occurred over the central Great Plains and the northern portions of the Gulf States. At the end of the period, another mass of arctic air was pushing into the northern Great Plains and temperatures were again falling over that area. Snow and sleet fell over the north central States and rain along a front from the Great Lakes to Alabama and Mississippi.

Temperatures averaged above normal over the central and southern Great Plains and the western portion of the northern Plains. Temperatures averaged below

(Continued on page 319).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Larvae medium to heavy on all alfalfa checked in Halifax County. (Reynolds, Mar. 19). First and second instars active in Pittsylvania County. (Dominick, Mar. 23). First instars 3 per 10 tips in 1 field in Patrick County. First and second instars 15 per 10 tips in field checked near Martinsville, Henry County. In another field near Martinsville, 143 larvae (first to third instars) found in 25 tips (averaged 5.7 per tip). Every tip checked infested and one had 13 larvae. Alfalfa ranged 3-6 inches in height in both counties. (Pienkowski, Mar. 23). About 25 percent of alfalfa tips infested with 1-4 first and second-stage larvae in Bedford County; alfalfa about 3-4 inches tall. From 25 to 50 percent of tips infested with 1-3 first and second instars (few third instars) in alfalfa sampled in Campbell County; alfalfa about 4 inches tall. In Prince Edward County, 30-50 percent of tips infested with up to 6 larvae per tip (mostly first and second instars); alfalfa about 5 inches tall. In Nottoway County, 25 percent of tips infested with up to 10 larvae per tip (mostly first instar), with injury barely noticeable; alfalfa about 4-6 inches tall. Damage quite apparent in alfalfa checked in Brunswick County. Nearly all tips infested with numerous first to third-stage larvae; alfalfa about 6 inches tall. (Bishop, Mar. 23). Field of alfalfa near North View, Mecklenburg County, had 37 larvae (first to fourth instars) in 3 square foot pan counts; alfalfa about 4-7 inches tall. One field near Darlington Heights, Prince Edward County, had 20 first instars per 10 tips. Field near Steeles Tavern, Rockbridge County, had 1 first instar per 10 tips. (Pienkowski, Mar. 24). Nearly all alfalfa tips infested with first to third-stage larvae in Mecklenburg County; considerable damage apparent and immediate treatment indicated. Alfalfa about 5-7 inches tall. In Halifax County, 50-75 percent of alfalfa tips infested with first to third instars; some damage evident but not enough to justify controls. Alfalfa about 6 inches tall. Situation in Pittsylvania County similar to that in Halifax County. (Bishop, Mar. 25). NORTH CAROLINA - Larvae ranged 50-150 per 50 sweeps (averaged 88) in 10 fields of alfalfa examined in Caswell and Rockingham Counties. Counts may have been affected by the cool wind blowing. Light damage observed. (Mount). GEORGIA - Light to moderate infestations on untreated alfalfa in Paulding County; treated alfalfa in northwest without noticeable infestations. (Johnson). ALABAMA - Few adults feeding and laying eggs on alfalfa in Morgan County. First-stage larvae noted on clovers in Lee County. (Barwood et al.). COLORADO - Not observed in Larimer and Weld Counties to April 2. (Simpson).

AN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Heavy larval infestations on alfalfa in Bard and Winterhaven areas of Imperial County. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae active in red clover at Lanham, Prince Georges County. (U. Md., Ent. Dept.). KANSAS - Occasional specimens noted in alfalfa in southeastern area; counts low and no damage noted. (Peters).

JAPANESE BEETLE (Popillia japonica) - OHIO - First, second and third-stage larvae observed at an airport and golf course in Summit County; averaged 12 per cubic foot. Most larvae approximately 3 inches deep in soil. (Custer).

SEED-CORN BEETLE (Agonoderus lecontei) - KANSAS - Quite abundant in the air in Sumner and Sedgwick Counties, south central. (Gates).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Percent survival of larvae by districts ranged 68-84 (average 78) in northwest, 72-80 (average 76) in northeast and 60-80 (average 71) in west. Survival normal in west but slightly higher than average in northwest and northeast districts. (Ill. Ins. Rpt.).

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae 10-15 per 200 sweeps of alfalfa at Gainesville. (Mead). Reported scattered on sweet corn ears at Ft. Myers, Lee County; nevertheless, 10 acres of corn refused because of earworms. (Walsh, Shirah; Mar. 24).

ALFALFA CATERPILLAR (Colias eurytheme) - CALIFORNIA - Light larval infestations on alfalfa in Fresno, Fresno County. (Cal. Coop. Rpt.). ARIZONA - Larvae averaged 30 per 100 sweeps in Buckeye area, Maricopa County; adult flight becoming numerous in Yuma County. (Ariz. Coop. Sur.). ALABAMA - Numerous adults in flight and laying eggs on clover and vetch in southwest counties. (Shuler). FLORIDA - Few larvae in alfalfa at Gainesville. (Mead).

A LEAF ROLLER MOTH (Platynota stultana) - ARIZONA - Light in alfalfa in Gila Valley, Yuma County; moderate in western portion of Maricopa County. (Ariz. Coop. Sur.).

A LEAF TIER (Udea profundalis) - CALIFORNIA - Light populations on alfalfa in Fresno and Clovis, Fresno County. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Light to threatening in Noble, Garfield, Major, Blaine, Kingfisher and Logan Counties. Some heavy counts (excess of 100 per linear foot) found in localized areas of these counties. These heavy counts not general, but reproduction occurring. Generally light with some isolated threatening spots noted in Woods, Alfalfa, Grant, northern Garfield, Kay and northern Noble Counties. A fluid condition exists in above mentioned counties with counts varying greatly from field to field and location to location within same county. No "greenbug spots" observed due to greenbug damage and only a limited amount of controls applied to date. Buildup also reported from Mountain Park area of Kiowa County, west central area. Latest reports continue to show low counts in other southwest and south central areas. (Okla. Coop. Sur.). KANSAS - Ranged 0-5 per 100 sweeps in wheat in southeast area. Specimens found only in extreme southern counties. Wheat 6-8 inches tall. (Peters). TEXAS - Few, isolated fields in Potter, Armstrong, Deaf Smith and Collingsworth Counties with populations of 100-300 per foot. Little damage expected to wheat, however. Averaged fewer than 15 per foot in Sherman and Moore Counties. (Daniels). NEW MEXICO - Continues very light in wheat fields near Portales, Roosevelt County; averaged under 1 per linear foot in fields checked. (N.M. Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Ranged 10-100 per 100 sweeps in southeastern area. Higher counts in southern counties. (Peters). OKLAHOMA - Moderate to heavy reproduction occurring in localized areas. (Okla. Coop. Sur.). FLORIDA - Adults 21 per 100 sweeps on rye at Gainesville. (Mead).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Spotted, light infestations of probably this species found in barley fields near Artesia, Eddy County. (N.M. Coop. Rpt.).

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Heavy in uncut alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Remains unusually light in Chaves and Eddy Counties on alfalfa; majority of fields checked in southern Dona Ana County appeared noninfested. (N.M. Coop. Rpt.). OKLAHOMA - Counts continue light in alfalfa checked in southeast, southwest and northwest areas. (Okla. Coop. Sur.). KANSAS - Ranged 0-20 per 100 sweeps on alfalfa in southeast. New growth of alfalfa 3-4 inches tall. (Peters). FLORIDA - Approximately 700 per 200 sweeps on alfalfa at Gaineville. (Mead).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Light to moderate in alfalfa in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.). NEW MEXICO - Remains unusually light in alfalfa in Chaves and Eddy Counties; majority of alfalfa fields checked in southern Dona Ana County apparently not infested. (N.M. Coop. Rpt.). OKLAHOMA - Light, 25-50 per 10 sweeps, in Choctaw County, southeast. Activity also reported from Sequoyah County, east central. (Okla. Coop. Sur.). KANSAS - Found only on south-facing roadside embankment in Montgomery County; counts about 20-25 per square foot of crown area. Not found in open alfalfa fields in southeastern district. (Peters).

APHIDS - ALABAMA - Building up rather rapidly on bur and crimson clovers in Lee, Macon and Tallapoosa Counties. (Barwood).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Adult counts remain same as past week but nymphal counts increasing in Yuma, Maricopa and Pinal Counties in alfalfa. Nymphs averaged 18 per 100 sweeps in Yuma County and 15 per 100 sweeps in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). COLORADO - Moderate numbers on alfalfa in Larimer County. (Simpson). UTAH - *L. elisus* active in Salt Lake City area. (Knowlton).

TARNISHED PLANT BUG (*Lygus lineolaris*) - FLORIDA - Adults and nymphs 30 per 200 sweeps on alfalfa at Gainesville; 19 adults and 48 nymphs per 200 sweeps collected on blue lupine in same area. (Mead). KANSAS - Ranged 0-10 per 100 sweeps in wheat in southeastern area. (Peters).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Ranged 20-25 per 100 sweeps in alfalfa in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). FLORIDA - Three adults per 200 sweeps on alfalfa at Gainesville. (Mead).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - OHIO - Observations of overwintering eggs between wheat sheaths and stems in Wayne County revealed no egg hatch. (Lyon).

LEAFHOPPERS - FLORIDA - Counts per 200 sweeps on alfalfa at Gainesville were one adult *Stragania robusta*, 1 adult *Scaphytopius* sp., 2 adults *Agallia constricta*, 8 adults and 1 nymph of *Empoasca* sp. and 2 adults of *Macrosteles fascifrons*. Counts per 200 sweeps on blue lupine at Gainesville were one adult *A. constricta* and 7 adults of *Cuerna costalis*. The latter from plants on higher, better drained soil; none from plants on lower, wetter part of field. Counts per 100 sweeps on rye at Gainesville were 8 adults of *M. fascifrons*, and 4 nymphs and 2 adults of *Graminella nigrifrons*. (Mead).

A DELPHACID PLANTHOPPER (*Delphacodes puella*) - FLORIDA - One adult collected in 100 sweeps of rye at Gainesville. (Mead).

HESSIAN FLY (*Phytophaga destructor*) - NEBRASKA - Wheat fields in Buffalo, Hall, Hamilton, Lancaster, Seward and York Counties examined for infestations of this species, cutworms and other small grain insects. No insects found and no visible damage seen. Soil moisture present down to 3 feet and condition of wheat appeared to be generally good. An earlier survey in mid-March in counties from Red Willow east to Jefferson along the Kansas border produced similar results, with one exception -- 2 fields of wheat in Franklin County were less than one percent infested with *P. destructor*. (Bergman).

GRASSHOPPERS - ARIZONA - Light, mixed infestations of *Melanoplus* spp. and *Trimerotropis* spp. nymphs in alfalfa and on weeds adjoining citrus groves on the Yuma Mesa in Yuma County. (Ariz. Coop. Sur.).

FIELD CRICKETS (*Gryllus* spp.) - ALABAMA - Leaving hibernation and feeding on seedling clovers and other plants in pasture and other sod areas. (Barwood).

BROWN WHEAT MITE (*Petrobia latens*) - TEXAS - Populations around 2,000 per foot (Henderson fork measure) with little apparent damage in Potter County. (Daniels). OKLAHOMA - Generally light in small grain fields checked in Noble, Garfield, Kay, Grant, Alfalfa, Logan, Kingfisher and Blaine Counties; moderate counts in areas of Major and Woods Counties, with some damage evident. Moderate to heavy populations reported in some Kiowa, Greer and Tillman County areas, with some estimates of up to 5,000 per linear foot in Mountain Park area of Kiowa County. (Okla. Coop. Sur.).

WINTER GRAIN MITE (*Penthaleus major*) - TEXAS - Light to heavy locally in Menard County; controls necessary. (Turner).

SPIDER MITES (*Tetranychus* spp.) - ALABAMA - Medium infestations reported on clovers in Chilton County. (Helms).

FRUIT INSECTS

APPLE RUST MITE (Aculus schlechtendali) - OHIO - Abundant on undersides of apple leaves in partially neglected orchard at Wooster, Wayne County, on July 5, 1963. This is a new State record. Det. by D. E. Johnston and confirmed by H. H. Keifer. (Forsythe).

APPLE APHID (Aphis pomi) - MARYLAND - Hatching in large numbers on apple at West Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

BLACK PEACH APHID (Anuraphis persicaeniger) - CALIFORNIA - All stages appearing heavy on nectarine trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - COLORADO - Colonies noted in numbers in nonbearing apple trees in Mesa County. Very few colonies in bearing orchards where spray programs used. (Bulla).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Heavy, isolated infestations noted on apples in Coosa County; light on peaches in Morgan County. (Jarrett, Barwood). MARYLAND - Heavy in apple orchard at Hancock, Washington County. (U. Md., Ent. Dept.).

TERRAPIN SCALE (Lecanium nigrofasciatum) - MARYLAND - Infesting peaches at Hancock, Washington County. (U. Md., Ent. Dept.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Infested home orchards in Union County. (Ark. Ins. Sur.). OKLAHOMA - Occurring on native and ornamental fruit trees. (Okla. Coop. Sur.). TEXAS - Many reports from wide portion of State concerning this pest on fruit trees. (Tex. Coop. Rpt.).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Adult feeding appearing on flower buds on isolated plants in Lee County. Egg laying underway. (McQueen).

CASEBEARERS (Acrobasis spp.) - GEORGIA - A. caryae and A. juglandis infesting pecan trees in bud in southern area. (Tedders).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate on citrus in open fields and lath houses in Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Light populations appearing on new citrus growth in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Appearing on citrus where preventative treatment not applied in Yuma County. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

AN APHID (Acyrthosiphon barri) - ARIZONA - Continues a problem in headed lettuce ready for harvest in Dome Valley, Yuma County. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light to heavy on collards and turnips in Gwinnett County. (Vanderford). Light to moderate on commercial cabbage plants in southern area. (Ratcliffe).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy on weeds near cataloup fields in Yuma County. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy on vegetables in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Large numbers on favorable weed hosts in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Heavy on weed hosts around and near potato fields in Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light to moderate on commercial cabbage plants in southern area. (Ratcliffe).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Numerous adults in flight and laying eggs in Marengo County. (Shuler).

A FLEA BEETLE (Epitrix fasciata) - FLORIDA - Severely damaging stem, bloom, leaves and fruit of eggplant at Homestead, Dade County. (Wolfenbarger).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on collards in Gwinnett County. (Vanderford).

THRIPS - NEW MEXICO - Ranged 1-2 per plant in Dona Ana County onion fields; larger plants apparently had greater numbers present. (N.M. Coop. Rpt.).

A SPRINGTAIL (Hypogastrura armata) - CALIFORNIA - Medium on garlic seed in Susanville, Lassen County. (Cal. Coop. Rpt.).

COTTON INSECTS

Report on Survival of Boll Weevil as Determined by Surface Trash Examinations During the Spring - Spring 1964 collections of surface ground (woods) trash samples (two square yards per sample) have been completed in six Southern States. Wherever possible, samples were taken from the same locations that were sampled in the fall of 1963. The number of live boll weevil (Anthonomus grandis) adults per acre and the percent survival is reported in the paragraphs below. For details of the fall hibernation survey in five of these States, see CEIR 13 (51): 1413-1415.

In NORTH and SOUTH CAROLINA, samples were taken during the period March 11-27 in the same four representative areas in which fall examinations were made in 1963. In each area, a total of 30 locations (farm sites) was sampled with 3 samples at each location. The same locations were sampled in both the fall and spring examinations. The areas are as follows: Area 1 - south central South Carolina (Orangeburg, Dorchester and Bamberg Counties); Area 2 - Coastal Plains of South and North Carolina (Florence, Darlington and Marlboro Counties, S.C., and Scotland County, N.C.); Area 3 - Piedmont of South and North Carolina (Anderson, Greenville and Spartanburg Counties, S.C., and Mecklenburg, Cleveland and Union Counties, N.C.); Area 4 - north central North Carolina (Nash, Wilson, Franklin and Edgecombe Counties). The average number of live weevils per acre in Areas 1, 2 3,and 4 was 753, 2742, 134 and 107, respectively. The percent survival for theseareas was 11.9, 27.4, 13.8 and 8.5, respectively. The percent survival was lowest in Area 4 and highest in Area 2. In Florence County, South Carolina, an average of 2582 weevils per acre was found for the spring of 1964 with a winter survival of 22.7 percent. The number of weevils surviving in Florence County is 3 times the number surviving in 1963. (Taft, Hopkins).

Spring trash examinations were made in GEORGIA from January to March in 19 north central counties. The number of live weevils per acre averaged 145 compared with 242 in 1963 and 847 in 1962. Six of the 19 fields were infested with the maximum taken from any field being 484. (Beckham).

Collections were started on February 24 in MISSISSIPPI and all examinations were completed on March 12. Three samples were taken from each location and either 7 or 8 locations were sampled in each county. Wherever possible, samples were taken from locations that were sampled last fall. Four counties made up each area and the State was divided into four areas as follows: Area 1 - lower delta (Sharkey, Issaquena, Yazoo and Humphreys Counties); Area 2 - central delta (Washington, Bolivar, Sunflower and Leflore Counties); Area 3 - north delta

(Coahoma, Tunica, Quitman and Panola Counties); Area 4 - hill section (Holmes, Madison, Noxubee and Monroe Counties). The average number of weevils per acre in Areas 1, 2, 3 and 4 was 753, 108, 188 and 108, respectively. The State average was 289 compared with 13 in 1963, 1132 in 1962, 1246 in 1961, 821 in 1960, 464 in 1959 and 392 in 1958. The percent survival for Areas 1, 2, 3 and 4 was 26.67, 6.56, 3.80 and 4.26, respectively. The State average (percent survival) was 9.68 compared with 0.2 in 1963, 13.59 in 1962, 8.59 in 1961, 16.23 in 1960, 12.22 in 1959 and 6.65 in 1958. (Pfrimmer).

Spring collections were made March 5-24 in northeast LOUISIANA. Three samples were collected at each location and 20 locations were used in Madison Parish, 10 in East Carroll Parish and 10 in Tensas Parish. The average number of weevils per acre was 1211 in Madison Parish, 1453 in East Carroll Parish and 484 in Tensas Parish, or an average of 1049 for the triparish area. The winter survival for the triparish area was 14 percent. In Madison Parish, where similar records have been made for the past 28 years, the survival for the winter of 1963-64 was 19 percent compared with the average of 37 percent for the 28-year period. Since these records have been made in Madison Parish, there have been 6 winters in which the survival was lower than for the winter of 1963-64. In the spring of 1963, the average number of weevils per acre for the triparish area was 121 and the winter survival 3.0 percent. Ground trash collections were made under ideal conditions last fall, but the reverse was true for this spring when collections were made. (Smith).

In central TEXAS, spring collections were made March 5-17. The same locations were sampled this spring as in the fall. Three samples were taken from each location and either 6 or 7 locations were sampled in each county. The average number of weevils found per acre in Falls, Hill, Limestone and McLennan Counties in the spring of 1964 was 403, 0, 0 and 0, respectively, with an area average of 97. The survival percentage for the area was 18.8. This compares with survival counts of 31.1, 33.7, 33.1 and 25.4 percent in March of 1960, 1961, 1962 and 1963, respectively. The number of weevils per acre found in the spring of 1963 was 452. The very hot, dry weather during the 1963 growing season caused early maturity, harvest and destruction of cotton stalks. This resulted in fewer weevils being found during the fall inspections than in the previous four years. The indicated spring survival was also very low. (Cowan).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Larvae infesting wild cotton bloom at Marathon, Monroe County, and at Cudjoe Key, Monroe County. (Humphries, Mar. 26). NEW MEXICO - Of 80 cocoons found on cotton stalk tap roots in fields where stalks had been shredded or undisturbed, 27 contained live larvae. Cocoons found one-half to one and one quarter inches below surface of soil. (N.M. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Numerous on young shortleaf and loblolly pines in Morgan County where severe infestations occurred in 1963. Approximately 50 percent of pupae died from unknown causes. No emergence occurred. Pupae continue heavy. (McQueen).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Reported in ornamental peaches and plums in Union County. Newly hatched larvae appearing in areas of northwest although very little food available. (Ark. Ins. Sur.). ALABAMA - Reported from most counties in State; heavy in Dallas and central counties on wild cherry and light in Morgan and other counties along northern State line. (Jarrett, Grandberry, Shuler et al.). GEORGIA - Defoliating wild cherry in Seminole County and in Tifton area, Tift County. (Hall, Beck, Ratcliffe). NORTH CAROLINA - Larvae about 1 inch long and making 1-3 webs per tree in group of wild cherry in Scotland County. (Johnston, Mar. 27).

FOREST TENT CATERPILLAR (*Malacosoma disstria*) - FLORIDA - Mature larvae infesting *Quercus laurifolia* at Gainesville, Alachua County. Det. by L. A. Hetrick. (Fla. Coop. Sur.). TEXAS - This species and *Malacosoma* sp. present on live oak in 12 central counties; counts varied up to 20 colonies per 10 feet of tree in Travis, Hays and Bexar Counties to 1 per 10 feet of tree in San Saba County. Other counties surveyed included Williamson, Comal, Gillespie, Llano, Mills, Burnet, Hamilton, Kendall and Lampasas. (Meisch). Populations in Guadalupe and Blanco Counties heavy and widespread. (Tex. Coop. Rpt., Massey).

SPRING CANKERWORM (*Paleacrita vernata*) - MISSOURI - Male and female moths found on elm trees in Boone County (central). (Houser, Thomas, Wood). NORTH DAKOTA - Adult male noted in Fargo, Cass County; first of season. (N.D. Ins. Sur.).

SPRUCE APHID (*Aphis abietina*) - CALIFORNIA - Heavy on Colorado spruce trees in Corte Madera, Marin County. (Cal. Coop. Rpt.).

COOLEY SPRUCE GALL APHID (*Chermes cooleyi*) - OHIO - Injured Colorado spruce in Wooster, Wayne County. (Neiswander).

A TREEHOPPER (*Platycotis vittata*) - FLORIDA - Infested oak trees at Tampa, Hillsborough County, and Davenport, Polk County; controls necessary. (Brown, Norton, Mar. 23, 27, 30).

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) - NORTH CAROLINA - Adults noted in Guilford County. (Wright).

BAGWORM (*Thyridopteryx ephemeraeformis*) - ALABAMA - Eggs noted in numerous bags on coniferous shrubs, willow, apples, elm and other plants throughout northern area. No hatching yet but numbers sufficient to provide extremely heavy infestations on shrubs and trees. (Jarrett et al.).

SCALE INSECTS - CALIFORNIA - *Lecanium persicae* heavy locally on daphne in Sacramento, Sacramento County; first record for county. *Chionaspis quercus* heavy on oak in Watsonville, Santa Cruz County, and *Aspidiotus perniciosus* heavy on rose locally in Red Bluff, Tehama County. (Cal. Coop. Rpt.). TEXAS - *Lecanium nigrofasciatum* locally heavy on oaks in Jefferson County. (Crocker). ALABAMA - *Eriococcus azaleae* heavy on azaleas on foundation planting locally in Lee County. (Hubbard, Hagler). GEORGIA - *Unaspis euonymi* light to moderate on euonymus and *Icerya purchasi* light to moderate on pittosporum. (French). FLORIDA - *Conchaspis angraeci* moderate on stem and bark of schefflera at North Miami, Dade County. (Dowling, Hickman; Mar. 26). A new host record for Florida Division of Plant Industry. (Fla. Coop. Sur.).

STRIPED MEALYBUG (*Ferrisia virgata*) - CALIFORNIA - Continues to be found on additional properties in city of Brawley, Imperial County. (Cal. Coop. Rpt.).

CITRUS MEALYBUG (*Pseudococcus citri*) - FLORIDA - Infested stem of *Podocarpus* sp. at Jacksonville, Duval County. (Dekle, Kuitert, Mar. 26). This is a new host record for Florida Division of Plant Industry. (Fla. Coop. Sur.). Severe on tulip bulbs at Fairvilla, Orange County. (Griffith).

PSYLLIDS - FLORIDA - *Trioza magnoliae* infesting red bay trees at Gainesville, Alachua County; causing leaf galls. All stages present. (Mead). TEXAS - *Paurocephala ilicis* adults numerous on youpon in Brazos County. (Franklin).

APHIDS - CALIFORNIA - *Lachnus salignus* adults heavy on pussy willow trees in Gilroy, Santa Clara County; all stages on pussy willow in Yuba City, Sutter County. *Vesiculaphis* sp., probably *caricis*, medium on azalea planting stock Altaville, Calaveras County. Adult *Prociphilus* sp. appearing on Modesto ash at trees in Red Bluff, Tehama County; this is unusually early in this location. *Amphorophora azaleae* nymphs and adults light on azalea nursery plants in Fresno, Fresno County. (Cal. Coop. Rpt.). FLORIDA - *Cinara thujafilina* moderately damaging Golden Tip arborvitae at Bartow, Polk County. (Snell, McLeod, Mar. 20).

NATIVE HOLLY LEAF MINER (*Phytomyza ilicicola*) - VIRGINIA - Heavy on American holly locally in Charlottesville, Albemarle County. (Rowell, Smith; Mar. 11).

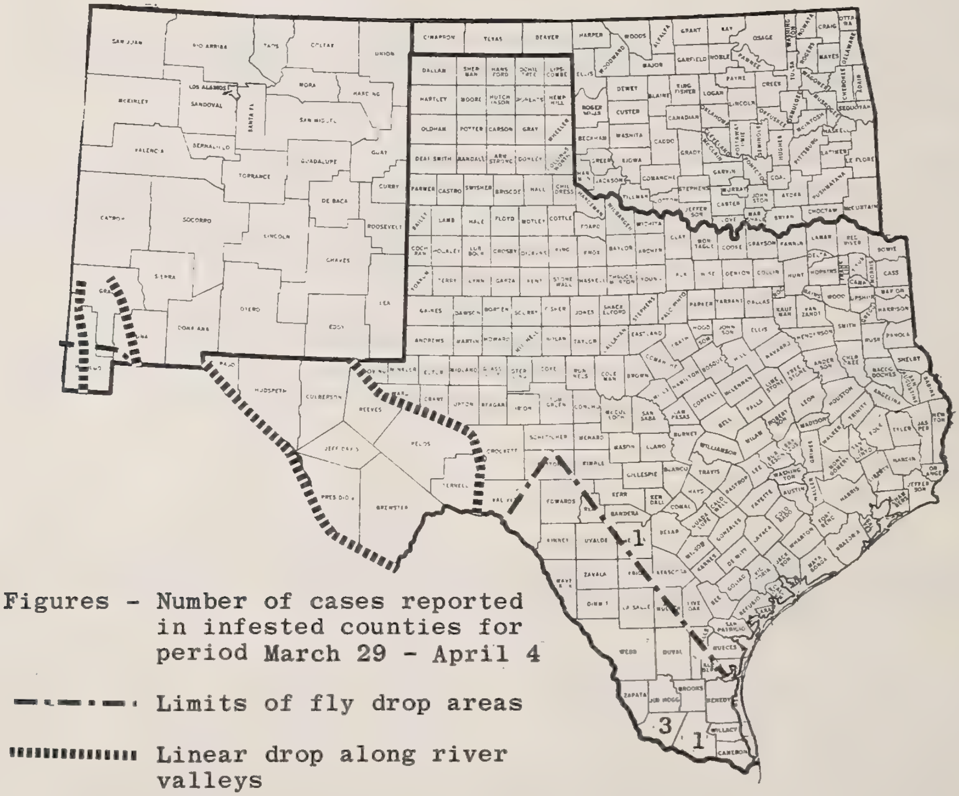
ARBORVITAE LEAF MINER (*Argyresthia thuiella*) - MARYLAND - Infesting arborvitae at Rockville, Montgomery County. (U. Md., Ent. Dept.).

TWO-STRIPED WALKINGSTICK (*Anisomorpha buprestoides*) - ALABAMA - Nymphs heavy and feeding on azalea under lath in Mobile County. (Seibels, Mar. 27).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period March 29-April 4, five screw-worm cases were reported from TEXAS. One case was reported in Hidalgo County, 3 in Starr County and one in Medina County. The Republic of Mexico reported 16 cases of screw-worms, 11 of which were in areas where sterile flies are being released. Two cases were in municipios adjoining southwestern Arizona. Specimens that were not screw-worms were determined as follows: 320 from Texas, 2 from New Mexico, 5 from Oklahoma and 20 from Republic of Mexico. During the week, a total of 93,649,050 sterile screw-worm flies was released, with Texas receiving 20,286,650; New Mexico, 200,000; and Republic of Mexico, 73,162,400. (Anim. Dis. Erad. Div.).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Figures - Number of cases reported in infested counties for period March 29 - April 4
Limits of fly drop areas
Linear drop along river valleys

CATTLE GRUBS (Hypoderma spp.) - MICHIGAN - Larvae have been appearing in backs of young dairy heifers in southern area since February. Animals which pastured in Livingston, Shiawassee and Ingham Counties in 1963 all show infestation with some counts higher than 20 per animal. Some groups of young cattle imported from other States carry infestations. (Dowdy). OKLAHOMA - Adults of H. lineatum quite active in Garvin, Murray, Cotton, Jefferson, Creek and Payne Counties. (Okla. Coop. Sur.).

BLACK BLOW FLY (Phormia regina) - UTAH - Numerous about cattle feeding yards in Ogden-Hooper, Weber-Davis County area. (Knowlton).

AN EYE GNAT (Hippelates collusor) - ARIZONA - Becoming troublesome to field workers in citrus areas of Yuma County. (Ariz. Coop. Sur.).

FACE FLY (Musca autumnalis) - MISSOURI - Reported resting on sunny side of buildings in Schuyler County, northeast area. (Houser, Thomas, Wood).

HOUSE FLY (Musca domestica) - UTAH - Active in St. George-Hurricane area of Washington County. (Knowlton). OKLAHOMA - Activity reported around homes and chicken houses in Blaine County. (Okla. Coop. Sur.).

SAND FLIES (Culicoides spp.) - FLORIDA - Causing distress to people in Cedar Key area, Levy County; millions reported present. (O'Berry, Mar. 29).

SHEEP KED (Melophagus ovinus) - OHIO - Moderate populations in home flocks in Morrow and Marion Counties, north central area. Primary danger involves keds moving from shorn ewes into wool of young lambs. (Lyon).

MOSQUITOES - UTAH - Larvae appeared in Salt Lake and Weber County waters. (Graham, Collett, Fronk, Knowlton).

CATTLE LICE - MICHIGAN - Infestations reported from individual herds in Barry, Osceola and Ingham Counties this winter. (Dowdy). UTAH - Some Cache County herds heavily infested; some controls applied this spring. (Knowlton, Tueller). Situation serious in most beef herds in Box Elder County; dipping vats being charged and treating of most herds planned. (Knowlton, Finch). Numerous in some herds in Duchesne-Neola area of Duchesne County and White Rocks-Tridell area of Uintah County. Infesting a number of bulls at Roy, Weber County. (Knowlton). OKLAHOMA - Moderate to heavy infestations reported from several areas throughout State. (Okla. Coop. Sur.). ARKANSAS - Increasing in northwest area; mainly Solenopotes capillatus and Linognathus vituli. (Ark. Ins. Sur.). WYOMING - Light infestations of L. vituli found on cattle in Goshen County; many ranchers applied controls. (Marks).

BED BUG (Cimex lectularius) - OHIO - Found locally in Franklin County. (Delaplane, Triplehorn).

A BLOODSUCKING CONENOSE (Triatoma protracta woodi) - CALIFORNIA - Adults light in feed store in Seeley, Imperial County. (Cal. Coop. Rpt.).

LONE STAR TICK (Amblyomma americanum) - ARKANSAS - Two herds checked in Washington County averaged 18 and 20 ticks per animal by the rump count. Ticks were engorged. (Ark. Ins. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

SUBTERRANEAN TERMITES (Reticulitermes spp.) - WYOMING - Infested motels in Green River, Sweetwater County, (Fronk) and at Wheatland, Platte County (Robb). MARYLAND - Reproductives and workers noted in floor joist at Beltsville, Prince Georges County. (U. Md., Ent. Dept.). NEW JERSEY - Swarms providing most of household pest inquiries. (Ins.-Dis. Newsltr.).

CLOVER MITE (Bryobia praetiosa) - OHIO - Activity reported during mid-March in Franklin and Stark Counties. (Delaplane, Rings). ARKANSAS - Active in Polk County; first report of season. (Ark. Ins. Sur.). OKLAHOMA - Causing some concern in homes in Sulphur area (south central). (Okla. Coop. Sur.). UTAH - Entering homes at Layton, Davis County; at Ogden, Weber County; and in Salt Lake County. (Knowlton). CALIFORNIA - Heavy adult migration into motel in Livermore, Alameda County; considerable nuisance in suburban Sacramento, Sacramento County. (Cal. Coop. Rpt.).

BOXELDER BUG (Leptocoris trivittatus) - MICHIGAN - Continues troublesome in some households in southern counties. (Janes). OHIO - Numerous phone calls and office visits have indicated that pest is causing considerable annoyance to homeowners. Adult activity reported in 8 counties within last few weeks. (Delaplane). NEW JERSEY - Continues to bother homeowners. (Ins.-Dis. Newsltr.). VIRGINIA - Adults common locally in James City County, and annoying in Richmond and vicinity. (Tarpley, Bryant, Willey; Mar. 24-26). NORTH CAROLINA - Locally annoying in Northampton County. (Taylor, Robertson).

LARGER YELLOW ANT (Acanthomyops interjectus) - DELAWARE - Some winged individuals emerging in home in New Castle County. (MacCreary).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Causing concern by moving into homes. (Okla. Coop. Sur.). TEXAS - Moving into homes in Andrews County; causing concern. (Millican).

A CERAMBYCID BEETLE (Megacyllene antennatus) - NEVADA - Adults light in home in Las Vegas, Clark County. (Morgan Pest Contr.).

BLACK CARPET BEETLE (Attagenus piceus) - OHIO - Activity recently reported in Putnam, Sandusky, Stark and Crawford Counties. (Delaplane).

POWDER-POST BEETLES - UTAH - Severely damaged floors in 3 homes at Garland, Box Elder County; built 3 years ago by same builder. (Knowlton, Finch).

SPIDER BEETLES - OKLAHOMA - Causing concern in homes in Pontotoc, Coal, Okmulgee and Tulsa Counties. (Okla. Coop. Sur.). DELAWARE - Gibbium psylloides infesting stored products in homes in northern New Castle County. (Burbutis).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - NORTH CAROLINA - Bothersome in home-stored wheat and flour products locally in Swain County. (Smith, Robertson).

WASPS - UTAH - Common on university campus and entering school rooms at Logan, Cache County. (Knowlton).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Large number of larvae noted on bags containing soybeans at Fairland, Montgomery County. (U. Md., Ent. Dept.).

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Few adults collected at blacklight traps in 2 infested storages in Monroe County early in January. Tubers from these storages disposed of and no adults collected since. (Wells).

CONFUSED FLOUR BEETLE (Tribolium confusum) - ALABAMA - Present in peanut candies in 18 rural stores following complaints in Lee, Tallapoosa and Clay Counties. (Barwood).

BENEFICIAL INSECTS

LADY BEETLES - FLORIDA - Total of 15 larvae and pupae taken in 200 sweeps on alfalfa at Gainesville, Alachua County. (Mead). MISSOURI - Adults of *Hippodamia convergens* flying on warm days in Boone County. (Houser, Thomas, Wood). KANSAS - Lady beetles, primarily *H. convergens*, present in trace numbers in most wheat and alfalfa examined in southeast area. (Peters). Occasional lady beetle seen in wheat in Sumner County (south central). (Gates).

A BROWN LACEWING (*Micromus* sp.) - FLORIDA - Total of 11 adults taken in 200 sweeps in alfalfa at Gainesville, Alachua County. (Mead).

GREEN LACEWINGS - KANSAS - Abundant in wheat in Sumner County (south central). (Gates).

A BIG-EYED BUG (*Geocoris punctipes*) - FLORIDA - One adult taken in 200 sweeps on blue lupine at Gainesville, Alachua County. (Mead).

A FLOWER BUG (*Orius insidiosus*) - FLORIDA - Two adults taken in 200 sweeps on blue lupine at Gainesville, Alachua County. (Mead).

DAMSEL BUGS (*Nabis* spp) - KANSAS - Present in trace numbers in most wheat and alfalfa examined in southeast. (Peters). FLORIDA - Two adults and 3 nymphs taken in 200 sweeps on alfalfa; 5 adults and 4 nymphs in 200 sweeps on blue lupine and 1 nymph taken in 100 sweeps on common rye at Gainesville, Alachua County. (Mead).

MISCELLANEOUS INSECTS

A DERMESTID (*Trogoderma parabile*) - UTAH - A heavy infestation developed in beetles left in a light trap stored in university laboratory at Logan, Cache County. Det. by J. M. Kingsolver. (Knowlton).

MOURNING-CLOAK BUTTERFLY (*Nymphalis antiopa*) - UTAH - Adults emerged at Logan, Cache County. (Knowlton, Cazier).

A PLUME MOTH (*Oidaematophorus* sp., probably *inquinatus*) - COLORADO - Collected at Fort Collins, Larimer County. (Thatcher).

Sticky-board Traps in Arizona - Green peach aphid (*Myzus persicae*) averaged 22.17 per board; melon aphid (*Aphis gossypii*) averaged 74.92 per board and beet leafhopper (*Circulifer tenellus*) averaged 1.33 per board. Twelve boards used. (Ariz. Coop. Sur.).

CORRECTIONS

CEIR 14(12): 217 - SUBTERRANEAN TERMITES - COLORADO - Specimens from Denver not *Reticulitermes* sp. Determined as *Zootermopsis angusticollis* by R. R. Lechleitner. Specimens of *Z. angusticollis* collected from shipment of lumber from the Northwest into Denver; all were apterous nymphs. (Ins. Det. Comm.).

(Weather continued from page 308)

normal over most of the rest of the Nation. A few locations, mostly in the Great Lakes region, averaged 10° or more below normal. A few locations in Montana and in central Texas averaged 6° or more above normal. The heaviest rains fell over Missouri, Arkansas, Mississippi, and portions of nearby States. One of the largest totals, 10.27 inches, fell at Enterprise, Mississippi. Rainfall totals of less than 0.5 inch were common over most of the western third of the Nation, over parts of the Northern Border States, and along the Gulf and Atlantic coasts. (Summary supplied by U.S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Tempera-ture °F.	Precipi-tation	Type of trap *	*Agrotis ipsilon* (black cutworm)	*Carpocapsa pomonella* (codling moth)	*Chorizagrotis auxiliaris* (army cutworm)	*Estigmene acrea* (salt-marsh caterpillar)	*Faronta diffusa* (wheat head armyworm)	*Feltia subterranea* (granulate cutworm)	*Heliothis virescens* (tobacco budworm)	*Heliothis zea* (bollworm, corn earworm)	*Laphygma frugiperda* (fall armyworm)	*Loxostege commixtalis* (alfalfa webworm)	*Loxostege similalis* (garden webworm)	*Loxostege sticticalis* (beet webworm)	*Ostrinia nubilalis* (European corn borer)	*Peridroma saucia* (variegated cutworm)	*Prodenia ornithogalli* (yellow-striped armyworm)	*Protoparce quinquemaculata* (tomato hornworm)	*Protoparce sexta* (tobacco hornworm)	*Pseudaletia unipuncta* (armyworm)	*Spodoptera exigua* (beet armyworm)	*Trichoplusia ni* (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 3/28-4/3																	7							Misc.
FLORIDA																								
Gainesville 3/31			BL						1															
GEORGIA																								
Tifton 3/26-4/1			BL							0	1							0	0					
MISSISSIPPI																								
Stoneville 3/28-4/3	27-78	0.02"	MV				3										17			16				
Stoneville 3/28-4/3	27-78	0.02"	BL	2			2										17	3		15				
SOUTH CAROLINA																								
Charleston 3/23-29	38-71	2.23"	BL	0			0		6	0	0	0					0	0	0	0	8		0	
Charleston 3/30-4/5	27-77	.08"	BL	6			1		7	0	1	0					0	2	0	0	27		0	
TEXAS																								
Waco 3/28-4/3			BL	0			1		0		1	0					20	3			26		0	
Brownsville 3/26-4/1			6BL	42			114		911		229	30		10231			289	34	38	12	235		36	

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

Analysis of Insect and Mite Infestations Found in Produce from the United States Examined in Ports in Great Britain in 1963 1/

This analysis is arranged in three sections. The origin of shipments from the United States is indicated as follows: W - all west coast ports; S - all gulf ports and east ports up to and including Norfolk, Virginia; N - all ports from Norfolk, Virginia, northwards, and including ports of the Lake States.

The information is based on inspections made in the ships during discharge or immediately afterwards on quays or in transit sheds so that there is no risk of recording insects which have invaded the goods after arrival. Insects are either identified by the inspectors or, in case of doubt, by experts in the Ministry of Agriculture, Fisheries and Food, or in the Department of Agriculture and Fisheries for Scotland, or at the British Museum of Natural History.

As in 1962, produce from southern ports had the greatest incidence of infestation, particularly rice and rice bran. A number of parcels of rice had to be fumigated on arrival to control partly or fully grown larvae of almond moth, *Cadra cautella* (Walk.). The infestation in many cases appeared to have been acquired during transit storage after fumigation at the mill and before shipment, as there was no evidence of cross or residual infestation on the ships. Infestations were concentrated mainly in June-October arrivals. Rice bran also continued to show appreciable infestation and is probably a source of cross-infestation during preshipment storage.

Trouble was also experienced in April with emergence of pea weevil, *Bruchus pisorum* (L.), from parcels of Alaska peas stored inland in Britain after import during the winter for canning and processing. This appeared to be due to failure of preshipment fumigation carried out in boxcars using chloropicrin under very low temperature conditions.

U.S.A. (W)

	Mixed Dried Fruit	Raisins	Hides	Clear Commodities	Total
Light	3	1	-	-	4
Moderate	1	-	1	-	2
Heavy	-	-	-	-	0
Infested	4	1	1	-	6
Clear	14	30	2	111	157
TOTAL	18	31	3	111	163
Carpophilus hemipterus (L.)	1	-	-	-	1
Dermestes maculatus Deg.	-	-	1	-	1
Necrobia rufipes (Deg.)	1	-	-	-	1
Plodia interpunctella (Hubn.)	3	1	-	-	4
Total species and species groups	3	1	1	-	4

No infestation was detected in barley (1 cargo), oats (3), rice (6), beans (19), peas (33), rapeseed (1), dates (4), prunes (27), currants (2), almonds (2), grass seed (9), vegetable seeds (3), and animal feed pellets (1).

1/ Submitted by J. A. Freeman, Chief Entomologist, Ministry of Agriculture, Fisheries and Food, Infestation Control Laboratory, Block B, Hook Rise, Tolworth, Surrey, England.

U.S.A. (S)

	Maize (corn)	Rice	Sorghum (Milo)	Flour	Rice Bran	Feather Meal	Clear Commodities	Total
Light	7	10	2	1	5	1	-	26
Moderate	-	4	-	-	1	-	-	5
Heavy	-	1	-	-	1	-	-	2
Infested	7	15	2	1	7	1	-	33
Clear	27	54	7	7	5	-	9	109
TOTAL	34	69	9	8	12	1	9	142
Carpophilus sp.	1	-	1	-	1	-	-	3
Dermestes frischii Kugelann	-	-	-	-	-	1	-	1
Lasioderma serricorne (F.)	-	1	-	-	-	-	-	1
Oryzaephilus surinamensis (L.)	-	1	-	-	-	-	-	1
Sitophilus oryzae (L.)	1	1	1	-	-	-	-	3
Tribolium castaneum (Herbst)	-	4	1	1	3	-	-	9
Typhaea stercorea (L.)	-	1	-	-	-	-	-	1
Cadra cautella (Walk.)	4	10	-	-	5	-	-	19
Plodia interpunctella (Hubn.)	1	-	-	-	-	-	-	1
Total species or species groups.	4	6	3	1	3	1	-	9

No infestation was found on wheat (4), soybeans (3), soybean meal (1) or hides (1).

U.S.A. (N)

No infestation was found on wheat (3), oats (1), rice (2), flour (4), starch (1), peabeans (1), beans (6), soybeans (2) and feather meal (1).

	Maize (corn)	Millet	Soybean Meal	Clear Commodities	Total
Light	5	1	1	-	7
Moderate	-	-	-	-	-
Heavy	-	-	-	-	-
Infested	5	1	1	-	7
Clear	36	2	4	21	63
TOTAL	41	3	5	21	70
Sitophilus granarius (L.)	1	-	-	-	1
Sitophilus zeamais (Mots.)	2	-	-	-	2
Tribolium castaneum (Herbst)	1	1	1	-	3
Typhaea stercorea (L.)	1	-	-	-	1
Hofmannophila pseudospretella (Staint.)	1	-	-	-	1
Plodia interpunctella (Hubn.)	1	-	-	-	1
Sitotroga cerealella (Oliv.)	1	-	-	-	1
Total species and species groups	7	1	1	-	7

In addition one cargo of Irak dates refused entry by Food and Drug Administration in New York and re-exported to United Kingdom was found infested by *Oryzaephilus mercator* (Fauv.) and *O. surinamensis* (L.)

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963

(Continued from page 305)

FOREST INSECTS [1]

The largest campaigns in more than a decade were undertaken in the United States in 1963 to suppress destructive forest insects. As a result, the scope and severity of infestations throughout the Nation were greatly reduced from levels of the past few years. Although there were many new outbreaks of BARK BEETLES, DEFOLIATORS and other pests in 1963, few of them compared with the wide-scale epidemics of 1962. An improved pattern of precipitation in much of the West and South and an increase in natural factors that hold some species in check brighten the overall outlook for forest insect conditions expected in 1964. The most significant infestations in the various sections of the country, together with a comparison of the status of those persisting from prior years, and a discussion of major action programs utilized in suppression in 1963 are highlighted in the paragraphs that follow. Needs for suppression in 1964 and planned projects are summarized in the appended table.

The Situation in the Western States

Forest insect conditions in CALIFORNIA were variable. A material decline occurred in the 1961-62 epidemic of WESTERN PINE BEETLE (*Dendroctonus brevicomis*) along the lower front of the Sierra Nevada. The area of infestation dropped from more than a million acres to less than 750,000. The decline in number of infested trees was estimated at more than 75 percent. The decline in area and severity of these infestations is attributed to the widespread salvage and chemical treatment of infested trees and to above-normal precipitation during the past 2 years. The long-standing epidemic of the FIR ENGRAVER (*Scolytus ventralis*) abated somewhat, but significant losses continued.

Populations of the SPRUCE BUDWORM (*Choristoneura fumiferana*) declined sharply in the Warner Mountains, Modoc County, and losses caused by the JEFFREY PINE BEETLE (*Dendroctonus jeffreyi*) remained low in most areas of the State. In contrast, the MOUNTAIN PINE BEETLE (*Dendroctonus monticolae*) continued its heavy toll of old-and young-growth sugar pine; the DOUGLAS-FIR TUSSOCK MOTH (*Hemerocampa pseudotsugata*) and the BALSAM-FIR SAWFLY (*Neodiprion abietis*) increased substantially in white fir; and, a 7,500-acre PANDORA MOTH (*Coloradia pandora*) outbreak occurred in stands of Jeffrey pine. Forest insect suppression was directed primarily against bark beetles in the Mother Lode area and in forest recreational areas in the central and southern part of the State.

On an overall basis, insect infestations in the forests of OREGON and WASHINGTON were less serious than those in 1962. The level of losses caused by BARK BEETLES in ponderosa pine stands was less, due primarily to an increase in the tempo of logging in many affected areas. Concerted action by owners and managers of forest lands in rapidly salvaging the large volume of 1962 windthrown timber in the coastal forests of both States materially lessened the likelihood of future serious bark beetle epidemics.

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[1] This summary is the introduction or highlight section of the "Forest Insect Conditions in the United States - 1963" which was compiled and published by the Division of Forest Insect Research, Forest Service, U. S. Department of Agriculture. Copies of the complete annual summary are available upon request from the Regional Forester in your area. Addresses of the regional offices may be found on page 326 of this issue of the CEIR.

Direct action to suppress the WESTERN HEMLOCK LOOPER (Lambdina fiscellaria lugubrosa) on 67,000 acres in the vicinity of Naselle, Washington, prevented wholesale tree killing in that area and eliminated the threat posed by outbreak populations to adjacent stands. The EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) was apparently eradicated from Spokane, Washington, and Salem, Oregon, and no new infestations, except in a nursery in Portland, Oregon, were found outside the Puget Sound Containment Zone. Direct control of the MOUNTAIN PINE BEETLE was continued at Crater Lake National Park, Oregon.

Losses of forest resources attributable to several insect pests continued heavy throughout the Intermountain States. Bark beetles remained the worst offenders, but defoliators also were quite troublesome. The long-standing epidemics of MOUNTAIN PINE BEETLE in stands of lodgepole pine on the Wasatch National Forest and at other locations in UTAH and WYOMING, have been largely checked by sustained large-scale suppression programs. Mountain pine beetle infestations on the Teton and Targhee National Forests and Grand Teton National Park, however, continued unabated despite suppression efforts, and large increases in populations developed anew in stands of lodgepole pine in parts of Sublette County, Wyoming, and Bingham County, IDAHO. For the first time in many years, ENGELMANN SPRUCE BEETLE (Dendroctonus engelmanni) infestations were reduced to endemic levels. Damage caused by the DOUGLAS-FIR BEETLE (D. pseudotsugae) also was less than at any time in the past decade. Outbreaks of TUSSOCK MOTHS (Hemerocampa spp.) were widespread on a variety of host species in southern IDAHO and NEVADA, and localized infestations of other miscellaneous species occurred at scattered locations throughout the Intermountain States.

The SPRUCE BUDWORM epidemic in IDAHO continued and the gross area of defoliation amounted to approximately 1.6 million acres. A start was made to suppress the budworm in 1963 by aerial spraying 200,000 acres. It is planned to spray an additional one-half million acres in 1964, and if needed, to treat the residual infestations in 1965.

Foliage feeders were the most troublesome insects in the Northern Rocky Mountains. The wide-scale infestations of spruce budworm continued in MONTANA and north Idaho and light to severe defoliation of host-type trees occurred again on a gross area of approximately 2.25 million acres. Aerial spraying for control of the budworm was completed successfully on 190,000 acres of heavily infested timber in the Bitterroot Mountains, and it is planned to treat other severely affected stands in 1964.

The LARCH CASEBEARER (Coleophora laricella), a relative newcomer to the Northern Rockies, continued its spread in western MONTANA, north IDAHO and northeastern WASHINGTON. Effective parasites of the casebearer have become established in Idaho and efforts will be increased to hasten their establishment throughout the general area of infestations. The DOUGLAS-FIR TUSSOCK MOTH showed signs of increasing in north IDAHO and outbreaks there are a possibility in the future. Chronic infestations of MOUNTAIN PINE BEETLE continued in stands of white pine on the Clearwater National Forest, IDAHO, but other bark beetles were less of a problem than for the past several years.

The BLACK HILLS BEETLE (Dendroctonus ponderosae) was the dominant pest in the Central Rocky Mountains and in the Black Hills of SOUTH DAKOTA and WYOMING. In the latter area, a large-scale epidemic, the worst in many years, destroyed thousands of ponderosa pines. The virulence of the epidemic prompted an all-out campaign by landowners in suppression and containment during the fall of 1963, and control of the epidemic is expected by mid-year in 1964. Elsewhere in the Central Rockies, Black Hills beetle infestations were largely contained by direct control action. The SPRUCE BUDWORM declined substantially from natural causes in most areas in COLORADO, and for the first time in many years ENGELMANN SPRUCE BEETLE infestations also were largely endemic.

Cultural, direct, and natural controls resulted in less damage and loss by insects to forest values in the Southwest than at any time during the past 5 years.

Infestations of the ENGELMANN SPRUCE BEETLE in northern NEW MEXICO have been reduced materially by sustained action in selling infested trees and burning infested slash and cull material. The 2-year control program directed against the 1.1 million-acre epidemic of SPRUCE BUDWORM greatly reduced the area of infestations. However, two new infestation centers totaling 100,000 acres were discovered in southern NEW MEXICO in 1963, and some 350,000 acres outside of the control zone in northeast New Mexico harbor outbreak populations. Direct control of the spruce budworm is not planned in 1964.

The Situation in the North Central and Eastern States

A variable pattern of infestations characterized forest insect conditions in the Lake, Central and Northeastern States. Natural factors reduced outbreak populations of the SADDLED PROMINENT (Heterocampa guttivitta), a PITCH PINE LOOPER (Lambdina athasaria pellucidaria), LINDEN LOOPER (Erannis tiliaria) and FOREST TENT CATERPILLAR (Malacosoma disstria) in the Northeastern States, and the more commonly important defoliators were less abundant in the Lake and Central States, largely because of natural control factors. SPRING CANKERWORM (Paleacrita vernata) and FALL CANKERWORM (Alsophila pometaria) defoliated oaks and hickories at many locations, and the GYPSY MOTH (Porthetria dispar) was a problem in areas of New England, NEW YORK, NEW JERSEY, and PENNSYLVANIA.

Aerial spraying by the States and the Agricultural Research Service of the USDA for control of gypsy moth totaled 342,400 acres. The SPRUCE BUDWORM epidemic in MAINE was controlled on 475,000 acres by spraying, and only 25,000 additional acres will need treatment in 1964. The intensity of SPRUCE BUDWORM infestations in northern MINNESOTA remained static, with no further spread to the south or east. Direct control of the budworm in Minnesota was limited to heavily infested areas in high-value recreational sites.

The BEECH SCALE (Cryptococcus fagi) and the associated Nectria fungus continued as serious threats to mature beech stands in MAINE, NEW HAMPSHIRE, VERMONT, and NEW YORK. The WHITE PINE WEEVIL (Pissodes strobi), BALSAM WOOLLY APHID (Chermes piceae), and a RED PINE SCALE (Matsucoccus resinosa) remained at damaging levels in the Northeast. Similarly, SARATOGA SPITTLEBUG (Aphrophora saratogensis), EUROPEAN PINE SHOOT MOTH and EUROPEAN PINE SAWFLY (Neodiprion sertifer) were destructive in local areas in the Central and Lake States.

The Situation in the South and Southeast

In the South and Southeast, infestations of all but a few forest insects were greatly reduced from previous years. The decline of SOUTHERN PINE BEETLE (Dendroctonus frontalis) populations, first observed in east TEXAS in 1962, continued to decline there and infestations in most other affected areas in ALABAMA, MISSISSIPPI, GEORGIA, NORTH CAROLINA and SOUTH CAROLINA also were brought under control in 1963. At year's end, all but a few southern pine beetle infestations were on the wane, and no serious tree killing over extensive areas is expected in 1964.

The long-standing outbreak of ELM SPANWORM (Ennomos subsignarius) in the southern Appalachian Mountains began a natural decline in 1963, and a continued decrease in populations is predicted for 1964. BLACK TURPENTINE BEETLE (Dendroctonus terebrans) activity continued at previous high levels with the greatest populations in the Gulf States area. Direct control of this beetle was required in all affected areas.

Needed Forest Insect Suppression Projects in the U.S. — Calendar Year 1964

Suppression Project	Location of Project	No. of acres in need of spraying (approximate)	No. of trees needing treatment (approximate)
Spruce budworm	Montana, Idaho Minnesota, and Maine	840,000	
Jack-pine budworm	Michigan	20,000	
Pine tussock moth	Wisconsin	17,000	
Mountain pine beetle	Idaho, Utah, Wyoming		500,000
Black Hills beetle	Colorado, Wyoming, South Dakota		200,000
Engelmann spruce beetle	Colorado, Wyoming		50,000
Western pine beetle	California		100,000
Southern pine beetle	Southern and Southeastern States		200,000
Black turpentine beetle	" "		500,000
Miscellaneous insects	Nationwide	50,000	10,000

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Missoula, Montana 59801

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